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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,865	06/28/2001	Masanori Fukui	209545US0X	3123
22850	7590	03/04/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			HOFFMANN, JOHN M	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/892,865	<b>Applicant(s)</b> FUKUI ET AL.	
	<b>Examiner</b> John Hoffmann	<b>Art Unit</b> 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 10 and 11 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 13 February 2004 has been entered.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukao 5211733 alone or in view of Osafune 4680045.

Col. 1, lines 27-36 disclose the Fukao powder is made by using a "solution". Solutions are wet because a solute is wetted by the solvent. Col. 4, lines 46-48 disclose the baking temperature. Col. 4, lines 64-68 discloses that the calcining may be done under a reduced pressure. The only limitation that Fukao does not teach is the specific pressure. It would have been obvious to reduce the pressure to the greatest extent possible, so as to maximize the effect of the vacuum. Alternatively it would have been obvious to perform routine experimentation to determine the optimal reduction in pressure.

Using the secondary reference, Osafune: Col. 3, lines 18-24 of Fukao indicates that he calcining causes the density of the powder to increase. It is clear that this density increase is not caused by sintering: col. 4, lines 48-50. Osafune is directed to making glass bodies from a sol gel process. At col. 9, line 64 - col. 10, line 8 Osafune discloses that when the silica material is heated in the same temperature range that Fukao uses, that the pores in the material close (see also col. 8, line 44 which discloses that step 6 is directed to pore closure). It would have been clear to one having both the references that the Fukao densification is caused by the elimination of pores (since they are both treating the same material at the same temperature). Although Osafune does not disclose the degree of vacuum: it would have been obvious to use the strongest vacuum possible, so as to remove the most amount of gas possible to prevent the enclosure of gas (bubbles) in the glass as taught by Osafune.

Claim 4: is met for the reasons given above.

Claims 10-11 are met - one would expect the same purity levels because the prior art would result in the same process that Applicant conducted. Alternatively, it would have been obvious to calcine the powder to make the powder as pure as possible.

Claim 2: Claim 3 sets forth that "air at atmospheric pressure" need not be air - it can be any "oxidizing atmosphere". In other words, the language "air at atmospheric pressure" need not be air. It is deemed that Applicant intends "air at atmospheric pressure" to be any gas. Thus whatever gas is in the Fukao furnace is deemed to read on the present broad "air at atmospheric pressure". Alternatively

### ***Claim Objections***

Claims 5-6 and 3 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Each claim 1 and 2 require baking at "a pressure". However, claim 5 requires that the pressure is changing: that the baking is occurring at more than one pressure. This is outside the scope of claim 1 and 2 which requires "a pressure". Thus claim 5 doesn't further limit the invention, rather it takes it to a scope that is completely outside the scope of claims 1 and 2. Claims 5-6 are not further treated on the merits

As to claim 3: claim 2 requires the use of air. However claim 3 attempts expand the scope of "air" to include any "oxidizing atmosphere". Thus claim 3 broadens the scope of claim 2. Therefore claim 3 fails to further limit claim 2 in that it broadens it.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-6 and 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what is meant by "air" in claim 2. Claim 3 indicates that the "air" can be any oxidizing atmosphere. It is unclear if applicant intends "air" in claim 2 to encompass still further atmospheres.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mc Daniel, Fleming and Matsuo are also cited as teaching heat treating limitations that are also taught by Applicant.

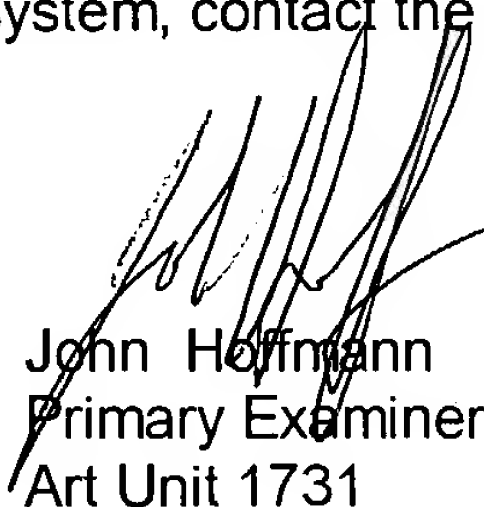
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John Hoffmann  
Primary Examiner  
Art Unit 1731

2-28-04

jmh